

# 2017 Region 9 Wildfire and Air Quality Status Update for California

Air Quality Analysis Office  
Region 9 Air Division  
January 8, 2018

# 2017 CA Wildfire Season Summary

- Between May 1 and December 31, **9,133 fires** have burned **1,398,566 acres** in California (as of January 5, 2018), an area larger than Delaware.
- There were **19 fires** that burned at least 15,000 acres each, including large fires in far northern CA, near Santa Barbara/San Luis Obispo, the North Bay and Southern California fires
  - Last year there were 8 such fires
- 2017 is **well above average** in total acreage and slightly above average in number of fires for CA, compared to the last 15 years
  - **Greatest total acreage since 2008**
  - **The largest and most deadly wildfires ever recorded**



Detwiler Fire. Credit: ABCNews

Data sources:

[http://cdfdata.fire.ca.gov/pub/cdf/images/incidentstats\\_events\\_269.pdf](http://cdfdata.fire.ca.gov/pub/cdf/images/incidentstats_events_269.pdf) and  
[http://cdfdata.fire.ca.gov/incidents/incidents\\_stats](http://cdfdata.fire.ca.gov/incidents/incidents_stats).

# 2017 California Wildfires over 15,000 acres (as of Jan 5, 2018)

| Name                  | County          | Acres   | Start Date | Containment Date | Status        |
|-----------------------|-----------------|---------|------------|------------------|---------------|
| Thomas                | Ventura         | 281,620 | 4-Dec      |                  | 91% contained |
| Long Valley           | Lassen          | 83,733  | 11-Jul     | 21-Jul           | Contained     |
| Modoc Complex         | Modoc           | 83,120  | 24-Jul     | 16-Aug           | Contained     |
| Detwiler              | Mariposa        | 81,826  | 16-Jul     | 24-Aug           | Contained     |
| Eclipse Complex       | Siskiyou        | 78,698  | 14-Aug     | 10-Oct           | Contained     |
| Salmon August Complex | Siskiyou        | 65,888  | 11-Aug     | 20-Oct           | Contained     |
| Nuns                  | Sonoma, Napa    | 56,556  | 8-Oct      | 31-Oct           | Contained     |
| Atlas                 | Napa, Solano    | 51,624  | 8-Oct      | 27-Oct           | Contained     |
| Garza                 | Fresno          | 48,889  | 9-Jul      | 21-Jul           | Contained     |
| Tubbs                 | Napa, Sonoma    | 36,807  | 8-Oct      | 31-Oct           | Contained     |
| Pier                  | Tulare          | 36,566  | 29-Aug     | 16-Oct           | Contained     |
| Redwood Valley        | Mendocino       | 36,523  | 8-Oct      | 26-Oct           | Contained     |
| Alamo                 | San Luis Obispo | 28,687  | 6-Jul      | 19-Jul           | Contained     |
| Orleans Complex       | Siskiyou        | 27,276  | 25-Jul     | 26-Sep           | Contained     |
| Helena-Fork           | Trinity         | 21,748  | 30-Aug     | 1-Oct            | Contained     |
| Lion                  | Tulare          | 19,215  | 24-Sep     | 29-Nov           | Contained     |
| Whittier              | Santa Barbara   | 18,430  | 8-Jul      | 8-Aug            | Contained     |
| Schaeffer             | Tulare          | 16,031  | 24-Jun     | 10-Aug           | Contained     |
| Creek                 | Los Angeles     | 15,619  | 5-Dec      | 29-Dec           | Contained     |



# Particulate Matter Pollution

- Particle pollution, also called particulate matter or PM, is a complex mixture of extremely small particles and liquid droplets in the air.
- Exposure to PM is linked to a variety of significant health problems, including:
  - premature death in people with heart or lung disease
  - aggravated asthma
  - increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing.
- Fine particles – particles with a diameter equal to or less than 2.5 microns ( $PM_{2.5}$ ) -- can be emitted directly into the atmosphere, such as smoke from a forest fire

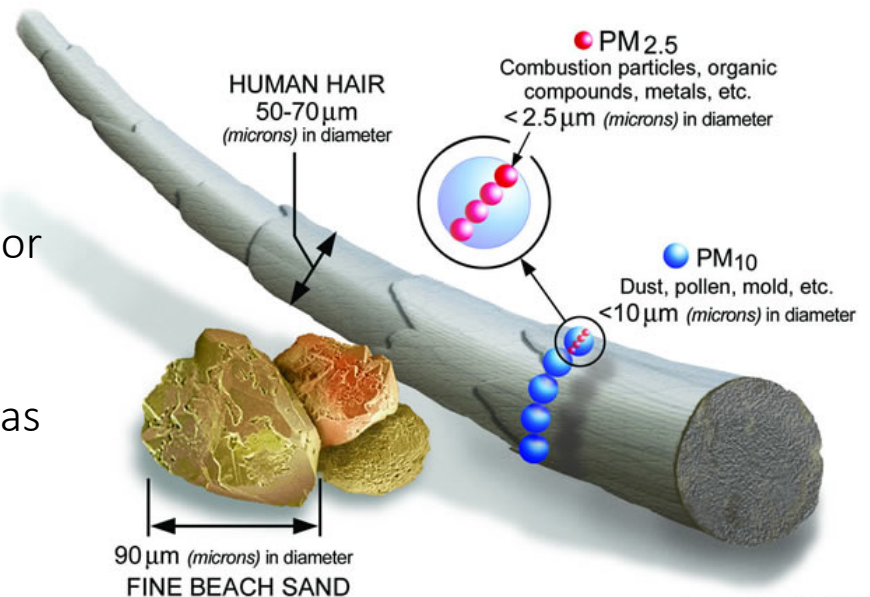


Image courtesy of the U.S. EPA

The Air Quality Analysis Office analyzed PM<sub>2.5</sub> monitoring data from the 2015, 2016, and current 2017 fire seasons in\*:

- Bay Area (San Francisco)
- San Joaquin Valley
- Sacramento Metro
- South Coast (Los Angeles)
- Mariposa County

\*Areas selected based on their proximity to and potential impact from major 2017 fires (>15k acres burned).

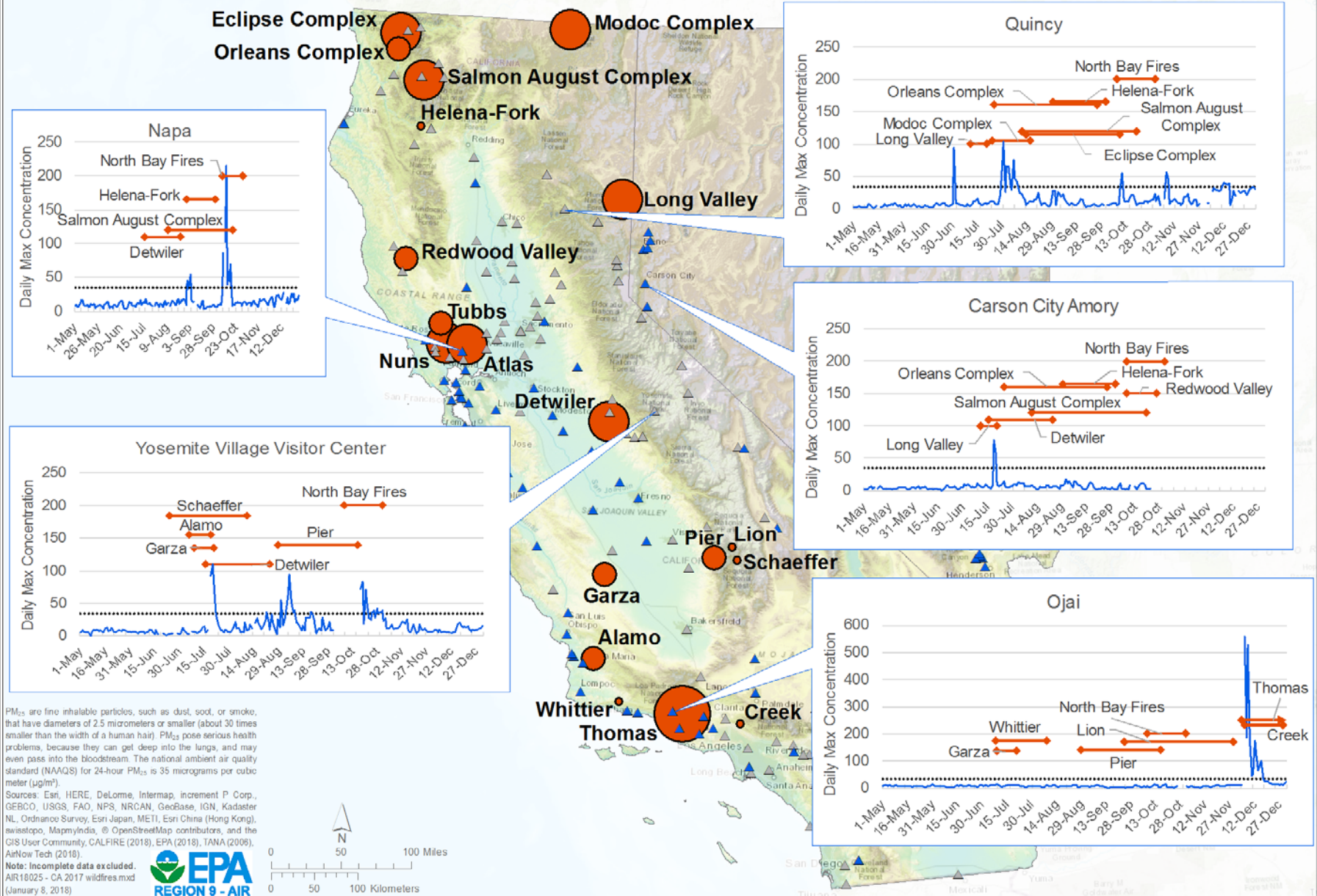






## CALIFORNIA WILDFIRES GREATER THAN 15,000 ACRES - MAY 1 - DECEMBER 31, 2017

- ▲ Regulatory PM<sub>2.5</sub> monitor
- ▲ Non-regulatory PM<sub>2.5</sub> monitor
- Wildfire 15,000 to 25,000 acres
- 25,001 to 50,000 acres
- 50,001 to 100,000 acres
- >100,000 acres

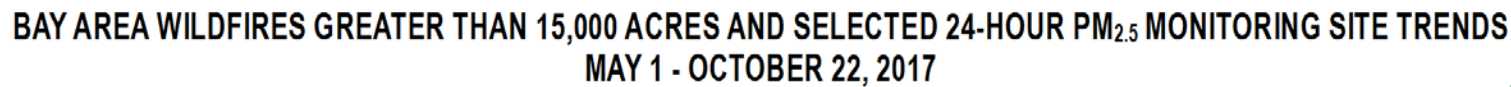


## CALIFORNIA WILDFIRES GREATER THAN 15,000 ACRES AND SELECTED 24-HOUR PM<sub>2.5</sub> MONITORING SITE TRENDS

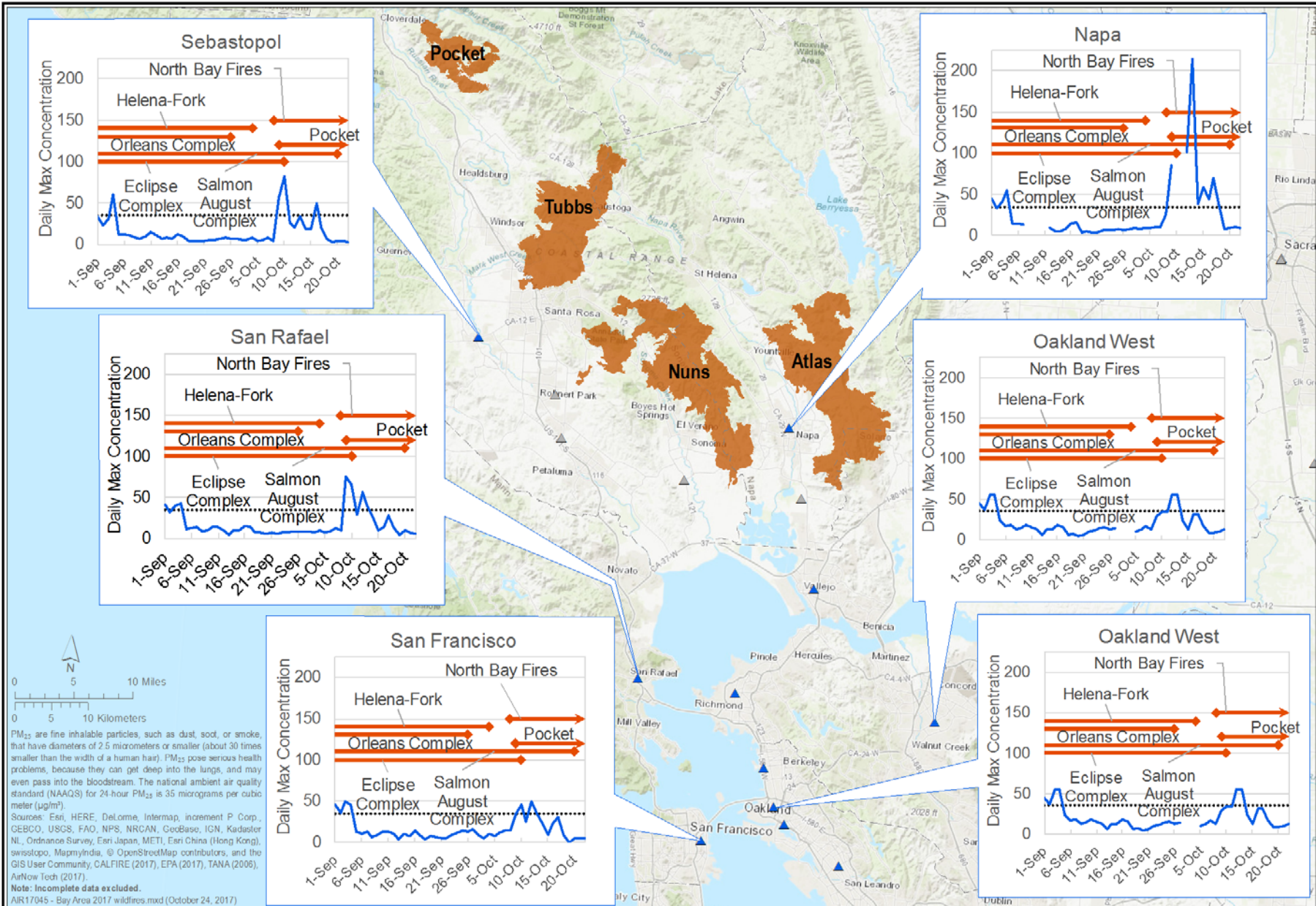
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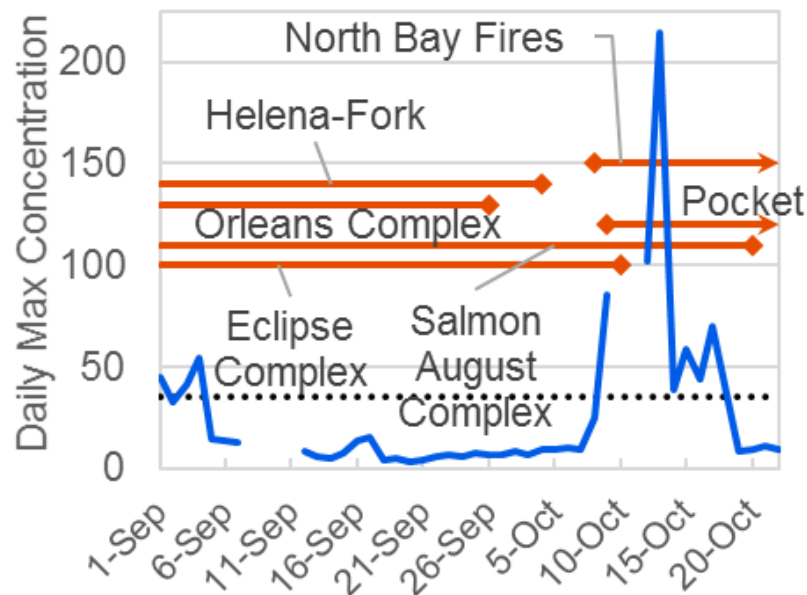




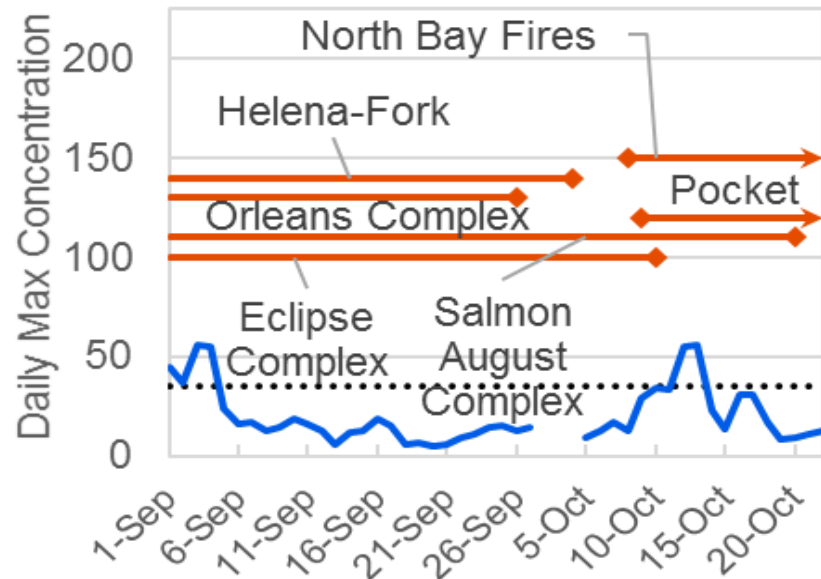
## BAY AREA WILDFIRES GREATER THAN 15,000 ACRES AND SELECTED 24-HOUR PM<sub>2.5</sub> MONITORING SITE TRENDS MAY 1 - OCTOBER 22, 2017

▲ Regulatory PM<sub>2.5</sub> monitor    ▲ Non-regulatory PM<sub>2.5</sub> monitor    --- County boundary    Wildfire perimeter

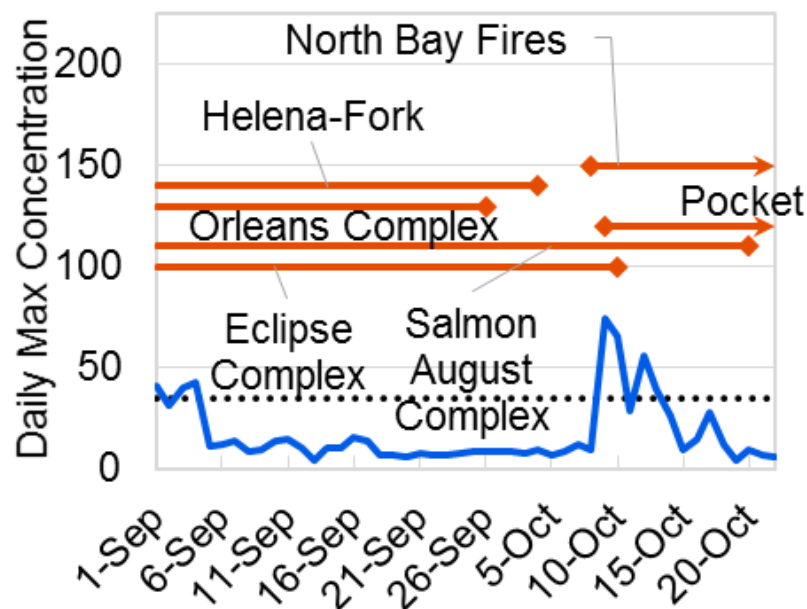
### Napa



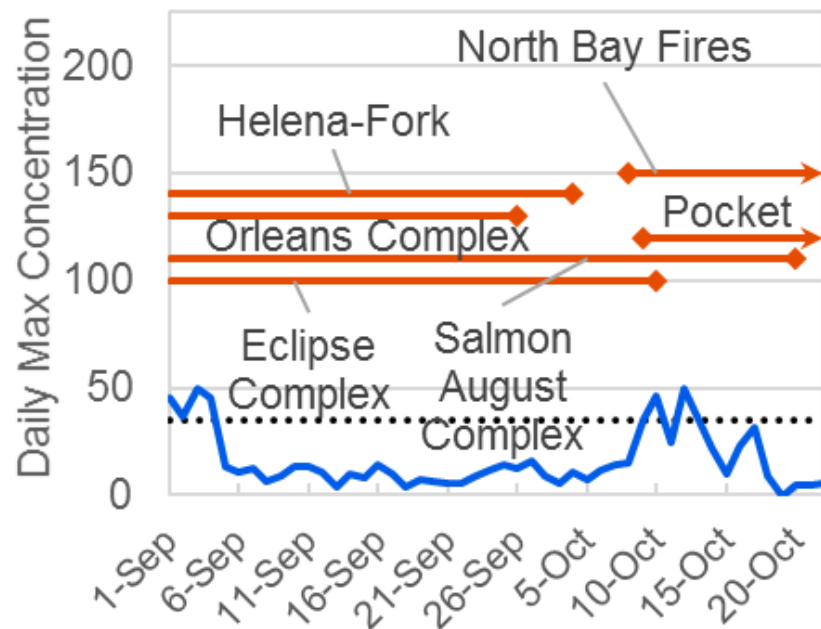
### Oakland West



### San Rafael

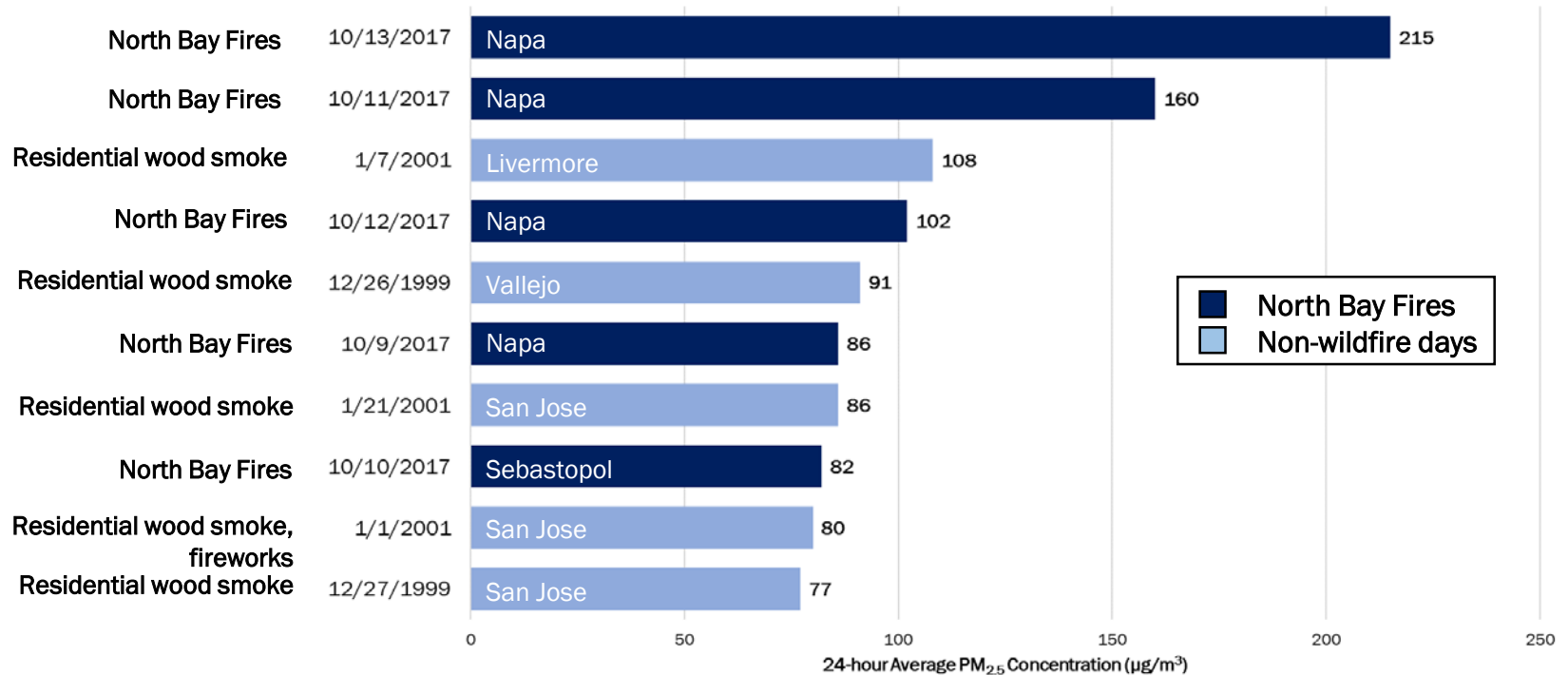


### San Francisco





## Top Ten PM<sub>2.5</sub> Days in the Bay Area since 1999



- Five of the top ten PM<sub>2.5</sub> days are attributable to smoke from the 2017 North Bay Fires
- Data above do not include data from temporary monitors or Napa Valley College

# PM<sub>2.5</sub> Data in Target Areas 2015-2017 (May 1– Oct 16) Fire Seasons

| Area               | May 1 - Oct 16, 2015   |  | May 1 - Oct 16, 2016   |  | May 1 - Oct 16, 2017*  |  |
|--------------------|------------------------|--|------------------------|--|------------------------|--|
|                    | Days above 24-hr NAAQS | Highest 24-hr Average (µg/m <sup>3</sup> ) | Days above 24-hr NAAQS | Highest 24-hr Average (µg/m <sup>3</sup> ) | Days above 24-hr NAAQS | Highest 24-hr Average (µg/m <sup>3</sup> ) |
| Bay Area           | 4                      | 49   | 1                      | 42   | 12                     | 215  |
| San Joaquin Valley | 5                      | 46   | 1                      | 42   | 7                      | 54   |
| South Coast        | 1                      | 70   | 4                      | 66   | 8                      | 47   |
| Sacramento Metro   | 9                      | 107  | 1                      | 41   | 9                      | 144  |
| Mariposa           | 7                      | 211  | 1                      | 44   | 12                     | 110  |
| <b>Total</b>       | <b>26</b>              |  | <b>8</b>               |  | <b>48</b>              |  |

\*Note: 2017 data is preliminary.





# Wildfire Tools/Resources

- AirNow Wildfires webpage: [http://cfpub.epa.gov/airnow/index.cfm?action=topics.smoke\\_wildfires](http://cfpub.epa.gov/airnow/index.cfm?action=topics.smoke_wildfires) is a publicly accessible webpage and displays AQI and PM concentration values for permanent and temporary monitors.
- USFS Airfire Monitoring Tool: <http://www1.tools.airfire.org/monitoring/v3/> is a publicly accessible webpage that provides graphs and displays AQI for permanent and temporary monitors.
- Fire Status:  
[http://cdfdata.fire.ca.gov/incidents/incidents\\_current](http://cdfdata.fire.ca.gov/incidents/incidents_current)  
<http://inciweb.nwcg.gov/state/5/>  
<http://firetracker.scpr.org/>  
<https://www.nifc.gov/index.html>
- Active Fire Mapping Program - Satellite Imagery: <http://activefiremaps.fs.fed.us/>
- Public Messaging: <http://californiasmokeinfo.blogspot.com/>
- R9 Compilation of North Bay Wildfire Tools (for internal EPA use only): [GIS viewer](#)
- California Clean Air Response Planning Alliance (CARPA): <http://www.arb.ca.gov/carpa/carpa.htm>
- “Wildfire Smoke Response Coordination – Best Practices Being Implemented by Agencies in California”: <http://www.arb.ca.gov/carpa/cawildfiresmokersresponsecoordinationaug14.pdf>

# Multi-Regional RARE Project: Deployment and performance testing of next-generation air sensors during wildland fire smoke events

Goal: Sensors will be deployed during wildfires by Air Resource Advisors from the USFS's Wildland Fire Air Quality Response Program to evaluate sensor performance, effectively interpret and visualize sensor data, and develop guidelines for communities and government agencies to use sensors during wildfire smoke events.

## Region 9

Anna Mebust  
Dena Vallano  
Lauren Maghran  
Kathleen Stewart

## ORD

Amara Holder

## Region 10

Robert Elleman  
Mike McGown  
Chris Hall